

Application No.: 09/824,931

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim1 (Currently Amended) A method for synthesizing polymers on a substrate using at least one mask each ~~having a plurality of reticle areas, wherein each reticle area comprises a plurality of reticles, and each reticle area is associated with a same synthesis area on the substrate; and further wherein each synthesis area is separated by a discard area, the method comprising the steps of:~~

(a) aligning a reticle of each of a plurality of reticle areas arranged on a mask-area with the a associated synthesis area on the substrate associated with each reticle area, wherein each reticle area comprises a plurality of reticles and each synthesis area is separated from its nearest neighbors by a discard area; and

(b) coupling monomers on the substrate at a plurality of locations determined by each aligned reticle; and

(c) sequentially repeating steps (a) and (b) for at least two of the plurality of reticles of each reticle area thereby enabling formation of polymers in each synthesis area on the substrate from each of the sequentially coupled monomers;

wherein the plurality of reticle areas are substantially contiguously arranged on the mask, and the plurality of reticles within each of the reticle areas are substantially contiguously arranged within the reticle area.

Claim 2 (Original) The method of claim 1, wherein:

the plurality of reticles in each reticle area are arranged in a same pattern.

Claim 3(Original) The method of claim 2, wherein:

the pattern comprises rows and columns of reticles.

Claim 4 (Previously Presented) The method of claim 2, wherein:

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each of the plurality of reticles in each reticle area has approximately a same height H and has approximately a same width W; and

step (a) comprises aligning by translating the at least one mask with respect to the substrate, wherein the translation distance is determined by the height H or the width W.

Claim 5 (Original) The method of claim 4, wherein:

the translating is done by moving the substrate while the mask remains stationary.

Claim 6 (Original) The method of claim 1, wherein:

the monomers are selected from the group consisting of nucleotides, amino acids or saccharides.

Claim 7 (Original) The method of claim 1, wherein:

step (b) further comprises coupling a same monomer for each of the aligned reticles.

Claim 8 (Original) The method of claim 1, wherein:

step (b) further comprises directing light through the aligned reticles to de-protect the locations for coupling.

Claim 9 (Currently Amended) A system for synthesizing polymers on a substrate using at least one mask, comprising:

~~at least one mask each having a plurality of reticle areas, wherein each reticle area comprises a plurality of reticles, and each reticle area is associated with a same synthesis area on the substrate; and further wherein each synthesis area is separated by a discard area;~~

an aligner to align a reticle of each of a plurality of reticle areas arranged on a mask area with the a associated synthesis area on the substrate associated with each reticle area, wherein each reticle area comprises a plurality of reticles and each synthesis area is separated from its nearest neighbors by a discard area; and

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a synthesizer that causes monomers to be coupled on the substrate at a plurality of locations determined by each aligned reticle;

wherein the aligner sequentially aligns at least two of the plurality of reticles of each reticle area to enable formation of polymers in each synthesis area on the substrate from each of the monomers sequentially coupled by the synthesizer; and further wherein the plurality of reticle areas are substantially contiguously arranged on the mask, and the plurality of reticles within each of the reticle areas are substantially contiguously arranged within the reticle area.

Claim 10 (Original) The system of claim 9, wherein:

the plurality of reticles in each reticle area are arranged in a same pattern.

Claim 11 (Original) The system of claim 10, wherein:

the pattern comprises rows and columns of reticles.

Claim 12 (Previously Presented) The system of claim 10, wherein:

each of the plurality of reticles in each reticle area has approximately a same height H and has approximately a same width W; and

the aligner aligns by translating the at least one mask with respect to the substrate, wherein the translation distance is determined by the height H or the width W.

Claim 13 (Original) The system of claim 12, wherein:

the translating is done by moving the substrate while the mask remains stationary.

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Claim 14 (Original) The system of claim 9, wherein:

the monomers are selected from the group consisting of nucleotides, amino acids or saccharides.

Claim 15 (Previously Presented) The system of claim 9, wherein:

the synthesizer couples a same monomer for each of the aligned reticles.

Claim 16 (Previously Presented) The system of claim 9, wherein:

the synthesizer directs light through the aligned reticles to de-protect the locations for coupling.

Claims 17-26 (Cancelled)

27. (Currently Amended) A computer program product for synthesizing polymers on a substrate using at least one mask each having a plurality of reticle areas, wherein each reticle area comprises a plurality of reticles, and each reticle area is associated with a same synthesis area on the substrate; and further wherein each synthesis area is separated by a discard area; the product comprising:

a computer usable medium storing control logic that, when executed on a computer system, performs a method comprising the steps of:

(a) aligning a reticle of each of a plurality of reticle areas arranged on a mask area with the a associated synthesis area on the substrate associated with each reticle area, wherein each reticle area comprises a plurality of reticles and each synthesis area is separated from its nearest neighbors by a discard area;

(b) coupling monomers on the substrate at a plurality of locations determined by each aligned reticle; and

(c) sequentially repeating steps (a) and (b) for at least two of the plurality of reticles of each reticle area thereby enabling formation of polymers in each synthesis area on the substrate from each of the sequentially coupled monomers;

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wherein the plurality of reticle areas are substantially contiguously arranged on the mask, and the plurality of reticles within each of the reticle areas are substantially contiguously arranged within the reticle area.

Claim 28 (Original) The product of claim 27, wherein:

the monomers are selected from the group consisting of nucleotides, amino acids or saccharides.

Claims 29-51 (Cancelled)